

# REPORT ON MACHINERY.

No. 24274

WED 24 NOV 1909

Port of Sunderland

Received at London Office

No. in Survey held at Sunderland Date, first Survey August 1908 Last Survey 20 Jan 1909  
 Reg. Book. on the Steel Screw Steamer 3117 (Number of Visits 34)  
 Master Built at Sunderland By whom built Thorn Bros (No 3117) Tons <sup>Gross</sup> 890 <sub>Net</sub> 536 When built 1909  
 Engines made at Sunderland By whom made E. Clark & Co when made 1909  
 Boilers made at do By whom made do when made do  
 Registered Horse Power \_\_\_\_\_ Owners Shipping Investments Ltd Port belonging to \_\_\_\_\_  
 Nom. Horse Power as per Section 28 143 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted No

**ENGINES, &c.**—Description of Engines Vertical Triple No. of Cylinders Three No. of Cranks Three  
 Dia. of Cylinders 17" 18" 46" Length of Stroke 30" Revs. per minute 65 Dia. of Screw shaft as per rule 9.35 Material of as fitted 9.5 screw shaft as fitted  
 Is the screw shaft fitted with a continuous liner the whole length of the stern tube Yes Is the after end of the liner made water tight in the propeller boss Yes If the liner is in more than one length are the joints burned Yes If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive Yes If two liners are fitted, is the shaft lapped or protected between the liners Yes Length of stern bush 38"  
 Dia. of Tunnel shaft as per rule 8.39 Dia. of Crank shaft journals as per rule 8.81 Dia. of Crank pin 9" Size of Crank webs 4 3/4 x 6 Dia. of thrust shaft under collars 10" Dia. of screw 11-3 Pitch of Screw 13-6 No. of Blades 4 State whether moveable No Total surface 43.2 #  
 No. of Feed pumps Two Diameter of ditto 2 1/2" Stroke 16" Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps Two Diameter of ditto 2 1/4" Stroke 16" Can one be overhauled while the other is at work Yes  
 No. of Donkey Engines Two Sizes of Pumps BALLAST FEED 6 1/2 x 8 x 8 5 1/2 x 3 1/2 x 5 No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room Two 2" dia one 2 1/2" Centre In Holds, &c. Two x 2" dia each 2 1/2" dia tunnel  
 No. of Bilge Injections 1 sizes 3 1/4" Connected to condenser, or to circulating pump Yes Is a separate Donkey Suction fitted in Engine room & size Yes 4" dia  
 Are all the bilge suction pipes fitted with roses Yes Are the roses in Engine room always accessible Yes Are the sluices on Engine room bulkheads always accessible None  
 Are all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks both  
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Yes Are the Discharge Pipes above or below the deep water line above  
 Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Yes Are the Blow Off Cocks fitted with a spigot and brass covering plate Yes  
 What pipes are carried through the bunkers None How are they protected Yes  
 Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes  
 Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges Yes  
 Dates of examination of completion of fitting of Sea Connections 25.11.08 of Stern Tube 3.12.08 Screw shaft and Propeller 15.12.08  
 Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Top platform

**BOILERS, &c.**—(Letter for record S) Manufacturers of Steel Spencer & Sons Ltd Newcastle  
 Total Heating Surface of Boilers 2421.5 # Is Forced Draft fitted No No. and Description of Boilers Two single end multibored  
 Working Pressure 180 lb Tested by hydraulic pressure to 360 lb Date of test 13.11.08 No. of Certificates 2734  
 Can each boiler be worked separately Yes Area of fire grate in each boiler 7.85 # No. and Description of Safety Valves to each boiler Two direct spring Area of each valve 5.44 # Pressure to which they are adjusted 185 lb Are they fitted with easing gear Yes  
 Smallest distance between boilers or uptakes and bunkers or woodwork 9" Mean dia. of boilers 11-5 1/2" Length 10'-6" Material of shell plates Steel  
 Thickness 1/4" Range of tensile strength 28 1/2 to 32 Are the shell plates welded or flanged No Descrip. of riveting: cir. seams DR Lap long. seams DR Lap Diameter of rivet holes in long. seams 1 1/8" Pitch of rivets 5 1/2" Lap of plates or width of butt straps 15 1/4"  
 Per centages of strength of longitudinal joint rivets 94 Working pressure of shell by rules 200 Size of manhole in shell End 16 x 13  
 Size of compensating ring End dished No. and Description of Furnaces in each boiler Two plain Material Steel Outside diameter 47"  
 Length of plain part top 7 1/2" Thickness of plates bottom 3/4" Description of longitudinal joint weld No. of strengthening rings —  
 Working pressure of furnace by the rules 180.4 Combustion chamber plates: Material Steel Thickness: Sides 11/16" Back 11/16" Top 11/16" Bottom 1"  
 Pitch of stays to ditto: Sides 9 1/2 x 8 1/2" Back 9 1/2 x 9" Top 9 1/2 x 9" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 190  
 Material of stays Steel Diameter at smallest part 1 1/2" Area supported by each stay 850 Working pressure by rules 213 End plates in steam space: Material Steel Thickness 1 1/8" Pitch of stays 17 x 18 How are stays secured D. nuts Working pressure by rules 185 Material of stays Steel  
 Diameter at smallest part 2 1/8" Area supported by each stay 306 Working pressure by rules 206 Material of Front plates at bottom Steel  
 Thickness 13/16" Material of Lower back plate Steel Thickness 7/8" Greatest pitch of stays 14 1/2" Working pressure of plate by rules 181  
 Diameter of tubes 3 1/4" Pitch of tubes 4 1/2" x 4 3/8" Material of tube plates Steel Thickness: Front 13/16" Back 3/4" Mean pitch of stays 10.2"  
 Pitch across wide water spaces 14 1/4" Working pressures by rules 280 lb Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 7 1/2" x 14" Length as per rule 30 1/2" Distance apart 9" Number and pitch of stays in each Two 9 1/2"  
 Working pressure by rules 182 Superheater or Steam chest; how connected to boiler Yes Can the superheater be shut off and the boiler worked separately \_\_\_\_\_ Diameter \_\_\_\_\_ Length \_\_\_\_\_ Thickness of shell plates \_\_\_\_\_ Material \_\_\_\_\_ Description of longitudinal joint \_\_\_\_\_ Diam. of rivet holes \_\_\_\_\_ Pitch of rivets \_\_\_\_\_ Working pressure of shell by rules \_\_\_\_\_ Diameter of flue \_\_\_\_\_ Material of flue plates \_\_\_\_\_ Thickness \_\_\_\_\_  
 If stiffened with rings \_\_\_\_\_ Distance between rings \_\_\_\_\_ Working pressure by rules \_\_\_\_\_ End plates: Thickness \_\_\_\_\_ How stayed \_\_\_\_\_  
 Working pressure of end plates \_\_\_\_\_ Area of safety valves to superheater \_\_\_\_\_ Are they fitted with easing gear \_\_\_\_\_

VERTICAL DONKEY BOILER— Manufacturers of Steel

No. \_\_\_\_\_ Description *no donkey boiler fitted*

Made at \_\_\_\_\_ By whom made \_\_\_\_\_ When made \_\_\_\_\_ Where fixed \_\_\_\_\_

Working pressure tested by hydraulic pressure to \_\_\_\_\_ Date of test \_\_\_\_\_ No. of Certificate \_\_\_\_\_ Fire grate area \_\_\_\_\_ Description of Safety \_\_\_\_\_

Valves \_\_\_\_\_ No. of Safety Valves \_\_\_\_\_ Area of each \_\_\_\_\_ Pressure to which they are adjusted \_\_\_\_\_ Date of adjustment \_\_\_\_\_

If fitted with easing gear \_\_\_\_\_ If steam from main boilers can enter the donkey boiler \_\_\_\_\_ Dia. of donkey boiler \_\_\_\_\_ Length \_\_\_\_\_

Material of shell plates \_\_\_\_\_ Thickness \_\_\_\_\_ Range of tensile strength \_\_\_\_\_ Descrip. of riveting long. seams \_\_\_\_\_

Dia. of rivet holes \_\_\_\_\_ Whether punched or drilled \_\_\_\_\_ Pitch of rivets \_\_\_\_\_ Lap of plating \_\_\_\_\_ Per centage of strength of joint \_\_\_\_\_ Rivets \_\_\_\_\_ Plates \_\_\_\_\_

Working pressure of shell by rules \_\_\_\_\_ Thickness of shell crown plates \_\_\_\_\_ Radius of do. \_\_\_\_\_ No. of stays to do. \_\_\_\_\_ Dia. of stays \_\_\_\_\_

Diameter of furnace Top \_\_\_\_\_ Bottom \_\_\_\_\_ Length of furnace \_\_\_\_\_ Thickness of furnace plates \_\_\_\_\_ Description of joint \_\_\_\_\_

Working pressure of furnace by rules \_\_\_\_\_ Thickness of furnace crown plates \_\_\_\_\_ Stayed by \_\_\_\_\_

Diameter of uptake \_\_\_\_\_ Thickness of uptake plates \_\_\_\_\_ Thickness of water tubes \_\_\_\_\_ Dates of survey \_\_\_\_\_

SPARE GEAR. State the articles supplied: *Propeller, 2 pack bolts & nuts for & hollow Red & main bearings, set of coupling bolts & nuts, valves for all pumps, H.P. pump ring & piston rings, bolts, nuts & iron assorted & sundries.*

The foregoing is a correct description,

Manufacturers

FOR GEORGE CLARK LIMITED.

*James C. Clark*

Dates of Survey while building

During progress of work in shops - -	}	1908. Aug. 4, 14, 21, 28, Sept. 3, 22, 25, 30, Oct. 2, 5, 9, 13, 15, 22, 29, 28, Nov. 2, 4, 9, 13, 20, 25, Dec. 3, 4, 10	
		During erection on board vessel - -	14, 15, 18, 23, 24, 1909. Jan. 4, 8, 20
		Total No. of visits	34

Is the approved plan of main boiler forwarded herewith *yes*

Dates of Examination of principal parts—Cylinders *22.10.08* Slides *4.11.08* Covers *1.12.08* Pistons *2.11.08* Rods *1.12.08*

Connecting rods *22.10.08* Crank shaft *2.11.08* Thrust shaft *1.12.08* Tunnel shafts *2.11.08* Screw shaft *1.12.08* Propeller *3.12.08*

Stern tube *1.12.08* Steam pipes tested *23.12.08* Engine and boiler seatings *25.11.08* Engines holding down bolts *24.12.08*

Completion of pumping arrangements *14.12.08* Boilers fixed *18.12.08* Engines tried under steam *8.1.09*

Main boiler safety valves adjusted *8.1.09* Thickness of adjusting washers *P 3/8 S 7/16 P 7/8 S 3/4*

Material of Crank shaft *815.6 376c* Identification Mark on Do. *AK* Material of Thrust shaft *4020 KH* Identification Mark on Do. *AK*

Material of Tunnel shafts *4021.2 2767* Identification Marks on Do. *AK* Material of Screw shafts *917 376c* Identification Marks on Do. *AK*

Material of Steam Pipes *2 1/2" dia 6W.S. Standard Copper* Test pressure *40 lbs*

General Remarks (State quality of workmanship, opinions as to class, &c.)

*The machinery of this vessel has been constructed under special survey, the material & workmanship found good & efficient, fitted & tested in accordance with the rules & eligible in my opinion for classification with record of + LMC 1.09.*

It is submitted that this vessel is eligible for THE BOARD.

*+ LMC 1.09*

*J.R.R. H.D.*

*25.11.09 25.11.09*

The amount of Entry Fee, £ *2 : 0* : When applied for, *Nov 16 09*

Special . . . . . £ *21 : 9* : When received, *Nov 23 09*

Donkey Boiler Fee . . . . . £ : : *Nov 23 09*

Travelling Expenses (if any) £ : : *Nov 23 09*

*G. J. Stoddart*

Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

FRI. 2 SEP 1910

26 NOV 1909

Committee's Minute

Assigned

*+ LMC 1.09*

MACHINERY CERTIFICATE



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Certificate (if required) to be sent to the Committee's Minute.